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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
COLLINS, GIOVANNA M

ART UNIT	PAPER NUMBER
3679	

DATE MAILED: 07/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/036,105	Applicant(s) SCHULTZ ET AL.	
	Examiner Giovanna M. Collins	Art Unit 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-10 and 14-18* is/are rejected.

7)☐ Claim(s) *2,3 and 11-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *28 April 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7-9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

Claim 1 is objected to because claim 1 recites the limitations "the drilling string" in line 3 and "the states" in line 5. There is insufficient antecedent basis for these limitations in the claim, as these limitations have not been previously recited.

Claim 3 is objected to because claim 3 recites the limitation "the position" in line 5. There is insufficient antecedent basis for this limitation in the claim, as this limitation has not been previously recited in claim 3 or claim 1 from which claim 3 depends.

Claim 9 is objected to because claim 9 recites the limitation "the bore hole " in line 3. There is insufficient antecedent basis for this limitation in the claim, as this limitation has not been previously recited in claim 9 or claim 6 from which claim 9 depends.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 4-5 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Zaleski, Jr. et al. ('480).

Zaleski et al. discloses a system for monitoring drill bit performance comprising a plurality of sensors located on a downhole section of a drill string (see Figs. 8a-8g); and

downhole circuitry (see col. 8, lines 10-57) for processing the states of said sensor to thereby derive and communicate a first warning state (see col. 9, lines 14-18) when the states of said sensors indicate that failure of the bit is beginning, and a second warning state when the sates of said sensor indicate that final failure of the bit is at hand (see col. 9, lines 26-29).

Referring to claim 4, Zaleski et al. discloses the first warning state and the second warning state are independently derived by different sensor (see col. 8, lines 13-44), and said second warning state can be detected by said sensors and said circuitry even under some failure conditions which would preclude detection of said first warning state.

Referring to claim 5, Zaleski et al. discloses the sensors include both a first type of sensor (see col. 8, lines 34-44) and a second type of sensor (see col. 8, lines 13-19).

Referring to claim 14, Zaleski et al. discloses a method of operating a drill ring comprising the step of using downhole circuitry (see col. 8, lines 10-57) to signal a changed in downhole equipment condition by causing a variation in drilling fluid static pressure.

2. Claims 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Daly et al. ('647).

Daly et al. discloses (see Fig. 5) a downhole assembly which indicates a failure condition by irreversibly movement of a valve (99) which affects mud flow impedance from a first state which is initially present during normal drilling irreversibly into at least one intermediate state which indicates a failure condition, and thereafter irreversibly into a final state, which returns mud flow impedance to substantially that seen during normal drilling (col. 8, lines 32-47).

Referring to claim 7, Daly et al. discloses sensors (39) located on the downhole assembly which monitors parameters indicative of drill bit condition.

Referring to claim 8, Daly et al. discloses valve (99) movement is capable of occurring at a time constant of at least about one second.

Referring to claim 9, Daly et al. discloses wherein the mud flow impedance is varied by opening an aperture (at 101) which allows mud to flow from the interior of the drill string to a bore hole.

Referring to claim 10, Daly et al. discloses a method of operating a drill rig, comprising the step of; monitoring downhole mud flow impedance; halting drilling when said impedance is altered by a downhole valve (89) which opens or closes a shunt path (97) for mud flow; wherein the valve changed positions according to reading of one or more sensor (73) located in a downhole sub assembly.

3. Claims 6-10 and 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by McCullough ('184).

McCullough discloses (see Fig. 5) a downhole assembly which indicates a failure condition by irreversibly movement of a valve (33) which affects mud flow impedance from a first state which is initially present during normal drilling irreversibly into at least one intermediate state which indicates a failure condition, and thereafter irreversibly into a final state, which returns mud flow impedance to substantially that seen during normal drilling.

Referring to claim 7, McCullough discloses sensors (see col. 3, line 67-col. 4 lines 6) located on the downhole assembly which monitors parameters indicative of drill bit condition.

Referring to claim 8, McCullough discloses valve (33) movement is capable of occurring at a time constant of at least about one second.

Referring to claim 9, McCullough discloses wherein the mud flow impedance is varied by opening an aperture (29) which allows mud to flow from the interior of the drill string to a bore hole.

Referring to claim 10, McCullough discloses a method of operating a drill rig, comprising the step of; monitoring downhole mud flow impedance; halting drilling (see col. 2, lines 10-13) when said impedance is altered by a downhole valve (33) which opens or closes a shunt path for mud flow; wherein the valve changed positions according to reading of one or more sensor (see col. 3, line 67-col. 4 lines 6) located in a downhole sub assembly.

Referring to claim 14, McCullough discloses a method of operating a drill ring comprising the step of using downhole circuitry (see col. 6, line 54-col. 7, line 43) to signal a changed in downhole equipment condition by causing a variation in drilling fluid static pressure.

Referring to claim 15, McCullough disclose the pressure variation is caused by irreversibly movement of a valve (33).

Referring to claim 16, McCullough discloses the pressure variation is caused by cycling a valve through a position which restricts fluid flow and through a position which restores fluid flow to is normal state (see col. 6, lines 54-col. 7, lines 43).

Referring to claim 17, McCullough disclose the caned in downhole equipment condition is detected by a downhole sensor (17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski et al. ('480) in view of Robbins ('784).

Zaleski et al. discloses the method of claim 14 but does not disclose an adaptive filter analyzes the data. Robbins teach that adaptive filters automatically adjusts its own impulse response so the filter can operate under changing conditions and readjust itself continuously to minimize an error signal (see col. 6, lines 33-42). Therefore it would be obvious to one skilled in the art at the time of the invention to modify the method of Zaleski et al. to analyze the data using an adaptive filter as taught by Robbins because adaptive filters automatically adjusts its own impulse response so the filter can operate under changing conditions and readjust itself continuously to minimize an error signal.

Allowable Subject Matter

Claims 2-3 and 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1,4-10 and 14-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Giovanna M. Collins whose telephone number is 703-306-5707. The examiner can normally be reached on 7:30-4 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H. Browne can be reached on 703-308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

gmc
July 22, 2003

DAVID BAGNELL
SUPERVISORY PATENT EXAMINER
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